Indiana Department of Environmental Management
Office of Water Quality
Wetlands Section

Publication Date:
August 30, 2010

Closing Date:
September 19, 2010

PUBLIC NOTICE

IDEM ID Number:
IWIP 2010-342-29-BCB-A

Corps of Engineers ID Number:
LRL-2009-629-sam

To all interested parties:

This letter shall serve as a formal notice of the receipt of an application for a **State Isolated Wetland Individual Permit** by the Indiana Department of Environmental Management (IDEM). The purpose of the notice is to inform the public of active applications submitted for permits required under IC 13-18-22 and to solicit comments and information on any impacts to water quality related to the proposed project. IDEM will evaluate whether the project complies with Indiana's water quality standards as set forth at 327 IAC 2 and all applicable provisions of IC 13-18-22.

1. Applicant:
Mr. Michael McBride
City of Carmel – City Engineer
Carmel City Hall, First Floor,
One Civic Square
Carmel, IN 46032

2. Agent:
Ms. Summer O'Brien
RW Armstrong
Union Station
300 South Meridian Street
Indianapolis, IN 46225

3. Project location: Sections 29, 30, 31, 32, Township 18 North, Range 3 East, Carmel U.S.G.S. Quad, Hamilton County. Shelborne Road from 116th Street to 131st Street, Upper White 8-Digit HUC, 05120201.

4. Affected waterbody: 0.11 acre of a 0.14+ acre Class II Forested Isolated Wetland, 0.06 acre of a 0.06 acre Class I Non-Forested Isolated Wetland (exempt), and Long Branch (storm water outlet permitted under RGP 2010-340-29-BCB-X).

5. Project Description: The applicant proposes to discharge 182 cubic yards (cys) of clean earthen fill into 0.11 acre of a 0.14+ acre Class II Forested Isolated Wetland (wetland continues out of right-of-way). Additionally, 0.06 acre of a 0.06 acre exempt Class I Non-Forested Isolated Wetland will be filled with 97 cys of clean earthen fill (exempt under 327 IAC 17-1-3 (7) (E)). The purpose of the project is to improve the capacity and level of service of Shelborne Road, requiring the widening of the road embankment, new sidewalks and a new storm sewer system. To mitigate for the impact to 0.11 acre of Class II Forested Isolated Wetland, the applicant proposes to construct off-site at a 2.5 to 1 ratio, a 0.28 acre Class II Forested Wetland with an additional 0.16 acre of contingency for a total of 0.44 acre. Additionally, the City of Carmel is mitigating at this location for Illinois Street wetland impacts permitted under IDEM 2006-132-29-EME-A. The mitigation site is located in the NE ¼ of Section 20, Township 19 North, Range 4 East, Noblesville U.S.G.S. Quad, Hamilton County, Upper White 8-Digit Hydrologic Unit Code (HUC), 05120201. For additional plans and information, please visit the IDEM Public Notice webpage at http://www.in.gov/idem/6399.htm.

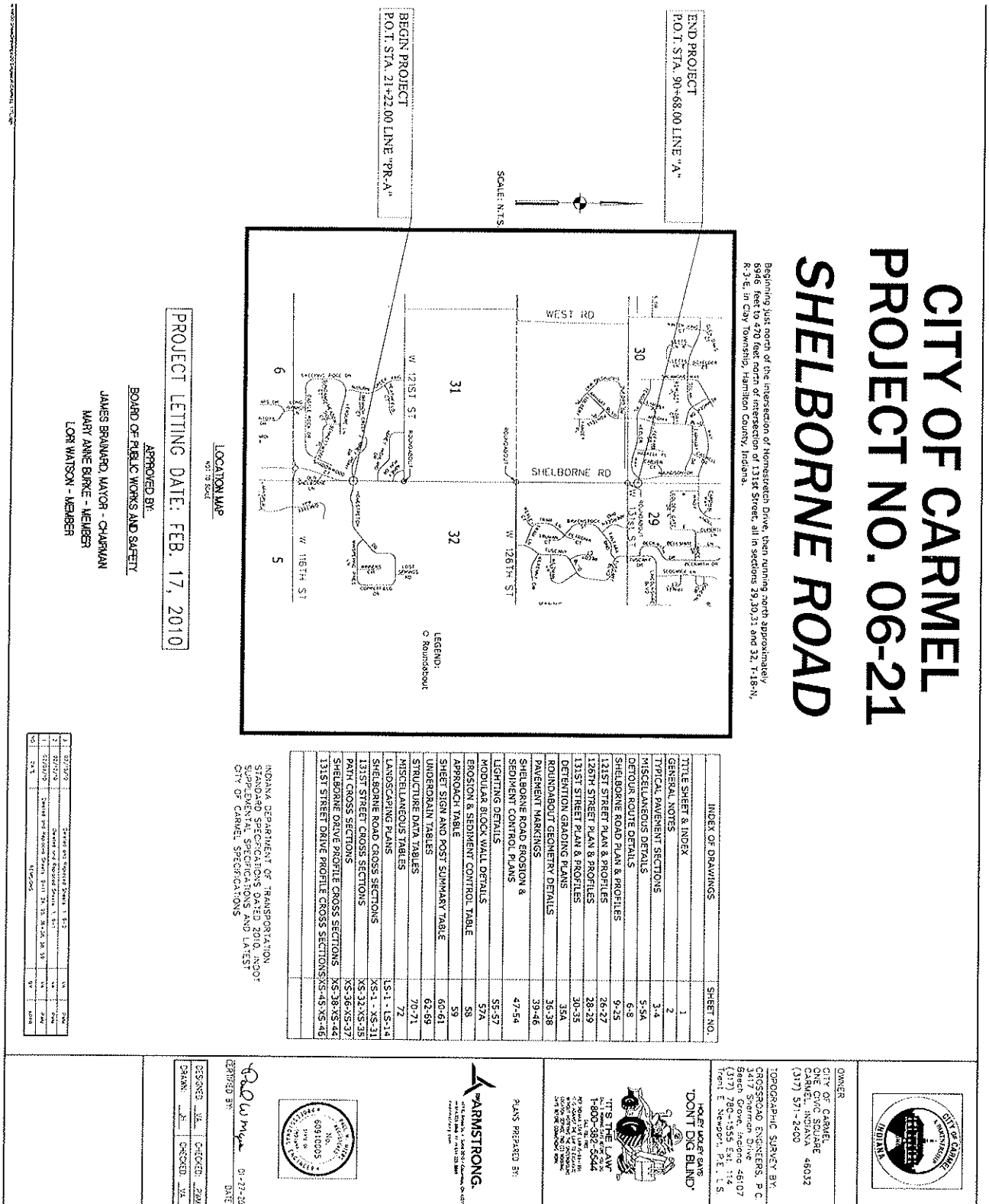
Comment period: Any person or entity who wishes to submit comments or information relevant to the aforementioned project may do so by the closing date noted above. Only comments or information related to water quality or potential impacts of the project on water quality can be considered by IDEM in the state isolated wetland permit review process.

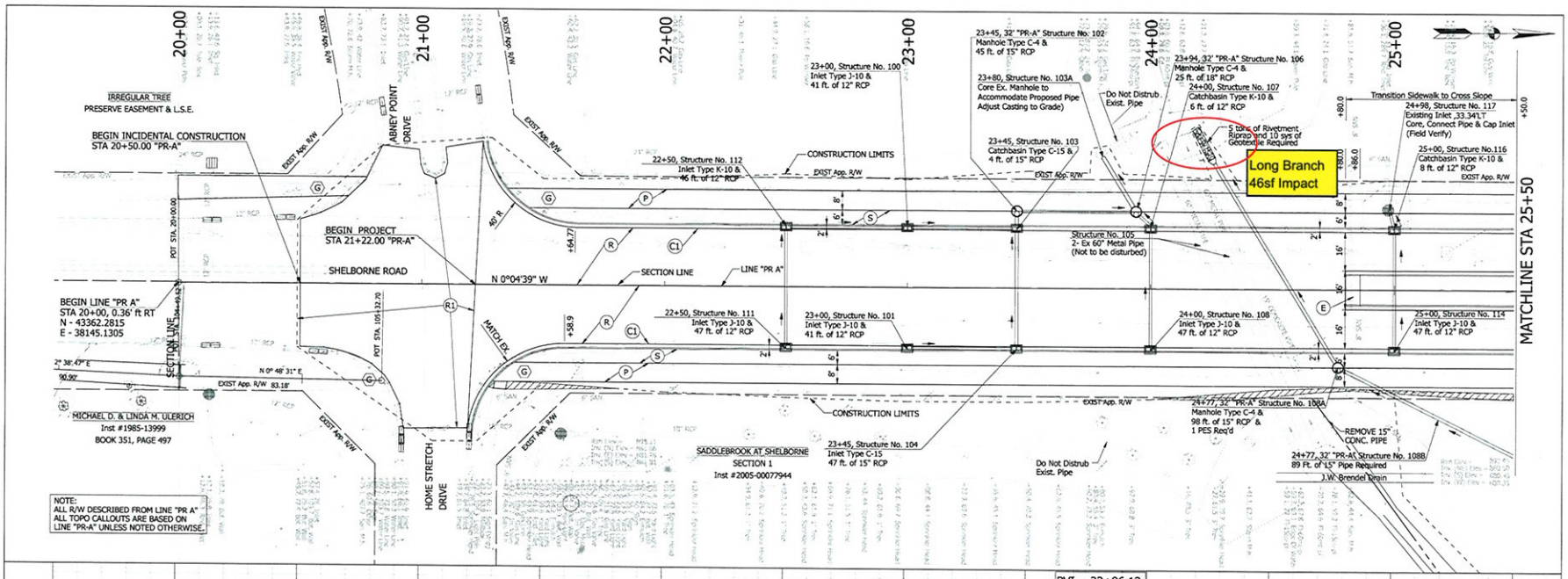
Public Hearing: Any person may submit a written request that a public hearing be held to consider issues related to water quality in connection with the project detailed in this notice. The request for a hearing should be submitted within the comment period to be considered timely. The request should also state the reason for the public hearing as specifically as possible to assist IDEM in determining whether a public hearing is warranted.

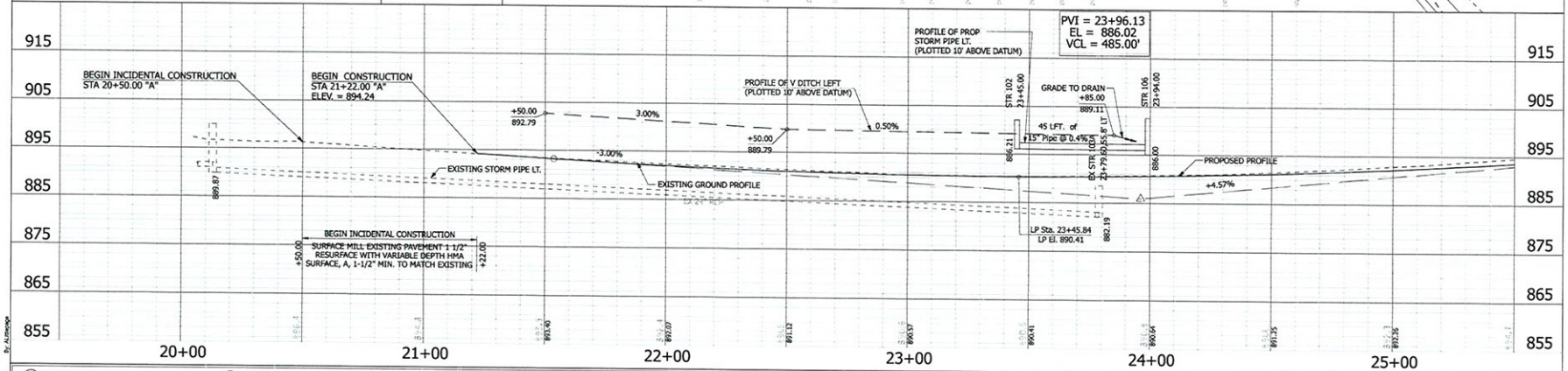
Questions?

Additional information may be obtained from Mr. Brad Baldwin, Project Manager, at 317-234-5647. Please address all correspondence to the project manager and reference the IDEM project identification number listed on this notice. Indicate if you wish to receive a copy of IDEM's final decision. Written comments and inquiries may be forwarded to -

Indiana Department of Environmental Management
100 North Senate Avenue
MC65-42 WQS IGCN 1255
Indianapolis, Indiana 46204-2251
FAX: 317/232-8406







(R) Bituminous Asphalt
(P) Bituminous Recreational Path
(C1) Concrete Curb & Gutter Type II
(C2) Alternate, Concrete Curb & Gutter Type III
(C3) Concrete Center Curb Type C
(S) Sodding, Nursery
(RC) Roll Curb, Modified
(J) PCCP, 4" (Colored and Stamped Grid Pattern) on 6" Compacted Agg, No.53, Base
(X) Letter Denotes Mod. Curb Ramp Type; Colored and Stamped
(W) Wedge and Level
(TA) Truck Apron
(C4) Straight Curb
(E) Median End Treatment
(R1) Resurface Over Variable Depth HMA
Indicates Ex. Asphalt Removal

PAUL W. MYERS REGISTERED No. 60910005 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL — DESIGN ENGINEER — DATE: 01-27-2010

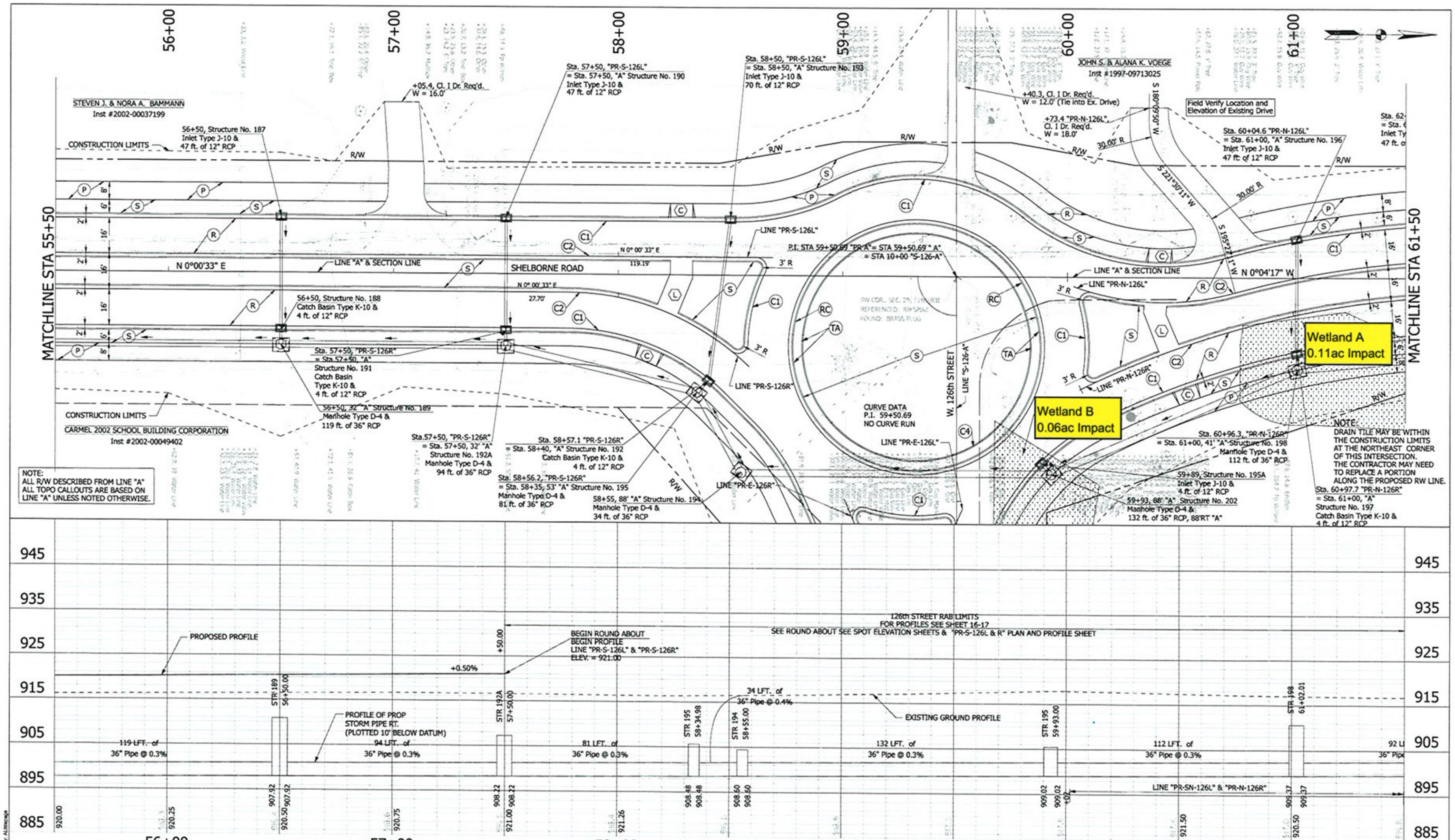
DESIGNED: VA | DRAWN: SAJ | CHECKED: PWM | CHECKED: VA

CITY OF CARMEL

SHELBORNE ROAD
PLAN & PROFILE, LINE "PR-A"

HORIZONTAL SCALE	1"=20'
VERTICAL SCALE	1"=10'
SURVEY BOOK	
CONTRACT	
BRIDGE FILE	
DESIGNATION	x
SHEET	10 of 72
PROJECT	06-21

Plotted on 6/8/2010 at 10:47 AM
By: ALStecyk
Model: PNAP01
Drawing: P:\Transportation\20067400 Shelbourne Rd\30 Sheet\Drawings\10 Base Sets\R-PNP-0112.dgn



Ⓡ Bituminous Asphalt
Ⓟ Bituminous Recreational Path
Ⓒ1 Concrete Curb & Gutter Type II
Ⓒ2 Alternate, Concrete Curb & Gutter Type III
Ⓒ3 Concrete Center Curb Type C
Ⓢ Sodding, Nursery
ⓇⒸ Roll Curb, Modified
Ⓙ PCCP, 4" (Colored and Stamped Grid Pattern) on 6" Compacted Agg, No.53, Base
Ⓧ Letter Denotes Mod. Curb Ramp Type; Colored and Stamped
Ⓦ Wedge and Level
ⓉⒶ Truck Apron
Ⓒ4 Straight Curb
Ⓔ Median End Treatment
Ⓡ1 Resurface Over Variable Depth HMA

PAUL W. MYERS REGISTERED No. 60910005 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL: Paul W Myers — DESIGN ENGINEER — 01-27-2010 DATE

DESIGNED: VA DRAWN: SAJ
CHECKED: PWM CHECKED: VA

CITY OF CARMEL

SHELBORNE ROAD
PLAN & PROFILE

HORIZONTAL SCALE 1"=20'	BRIDGE FILE
VERTICAL SCALE 1"=10'	DESIGNATION x
SURVEY BOOK	SHEET 18 of 72
CONTRACT	PROJECT 06-21

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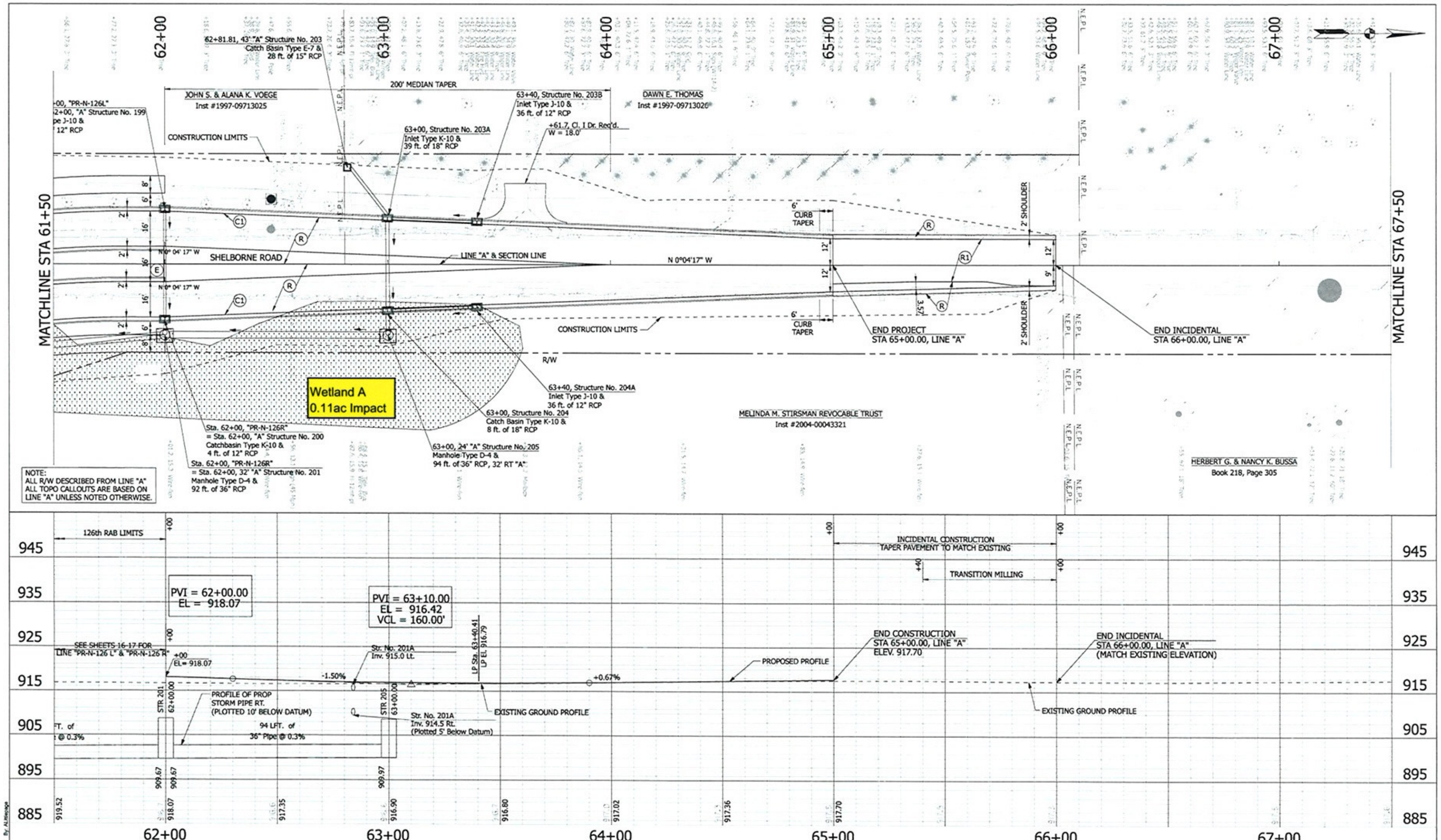

(R) Bituminous Asphalt	(S) Sodding, Nursery
(P) Bituminous Recreational Path	(RC) Roll Curb, Modified
(C1) Concrete Curb & Gutter Type II	(J) PCCP, 4" (Colored and Stamped Grid Pattern) on 6" Compacted Agg, No.53, Base
(C2) Alternate, Concrete Curb & Gutter Type III	(X) Letter Denotes Mod. Curb Ramp Type; Colored and Stamped
(C3) Concrete Center Curb Type C	
(W) Wedge and Level	(TA) Truck Apron
(C4) Straight Curb	(E) Median End Treatment
(R1) Resurface Over Variable Depth HMA	

PAUL W. MYERS REGISTERED No. 60910005 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL: Paul W Myers — DESIGN ENGINEER — 01-27-2010 DATE

DESIGNED: VA DRAWN: SAJ

CHECKED: PWM CHECKED: VA

CITY OF CARMEL

SHELBORNE ROAD
PLAN & PROFILE, LINE "A"

HORIZONTAL SCALE 1"=20'
VERTICAL SCALE 1"=10'
SURVEY BOOK
CONTRACT

BRIDGE FILE
DESIGNATION x
SHEET 21 of 72
PROJECT 06-21

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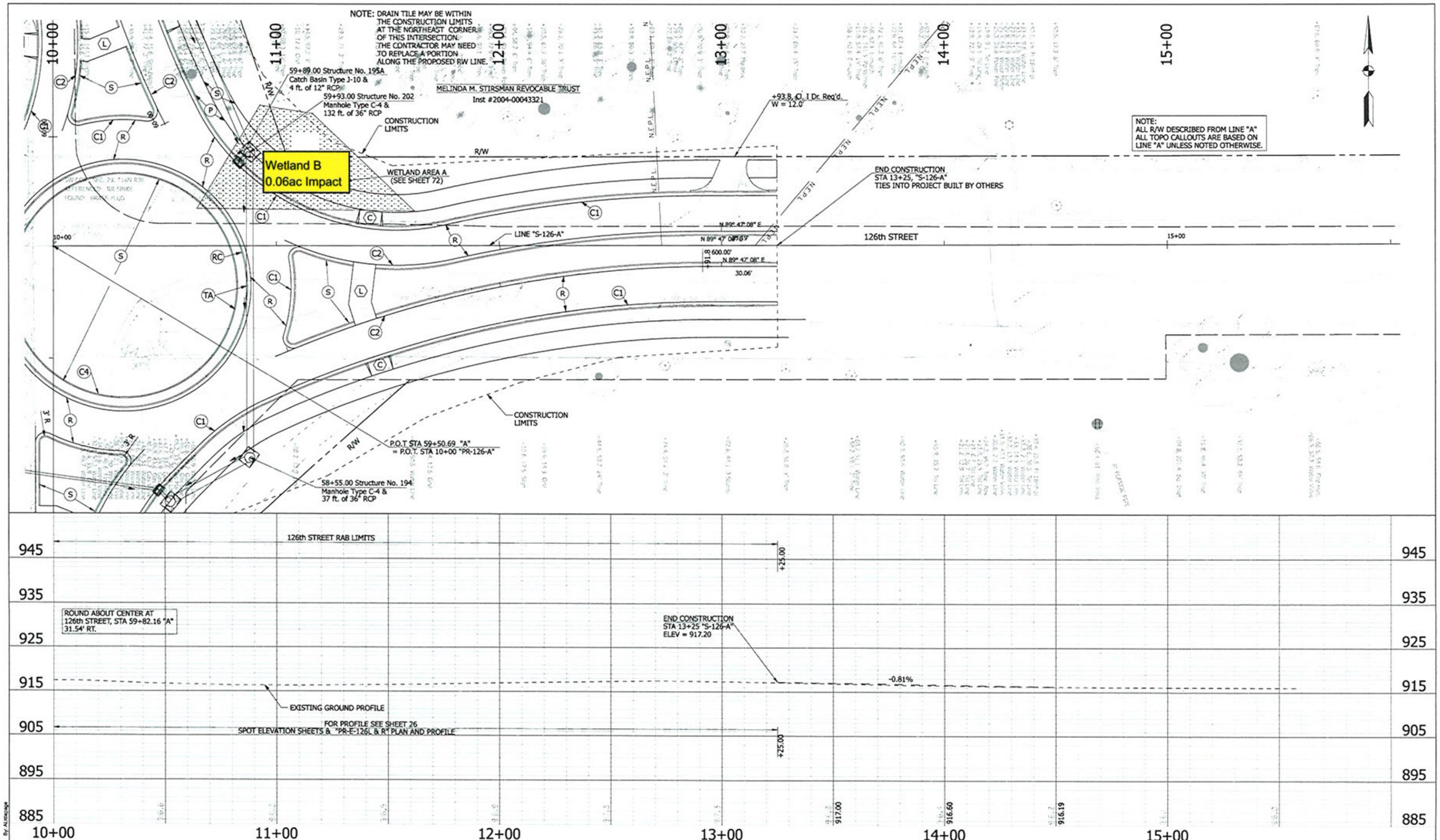

Ⓡ Bituminous Asphalt
Ⓟ Bituminous Recreational Path
(C1) Concrete Curb & Gutter Type II
(C2) Alternate, Concrete Curb & Gutter Type III
(C3) Concrete Center Curb Type C
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(TA) Truck Apron
(C4) Straight Curb
Ⓔ Median End Treatment
(R1) Resurface Over Variable Depth HMA

PAUL W. MYERS REGISTERED No. 60910005 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	Paul W Myers DESIGN ENGINEER	01-27-2010 DATE	
DESIGNED: VA	DRAWN: SAJ		
CHECKED: PWM	CHECKED: VA		

CITY OF CARMEL

126th STREET
PLAN & PROFILE

HORIZONTAL SCALE 1"=20'	BRIDGE FILE
VERTICAL SCALE 1"=10'	DESIGNATION x
SURVEY BOOK	SHEET 29 of 72
CONTRACT	PROJECT 06-21

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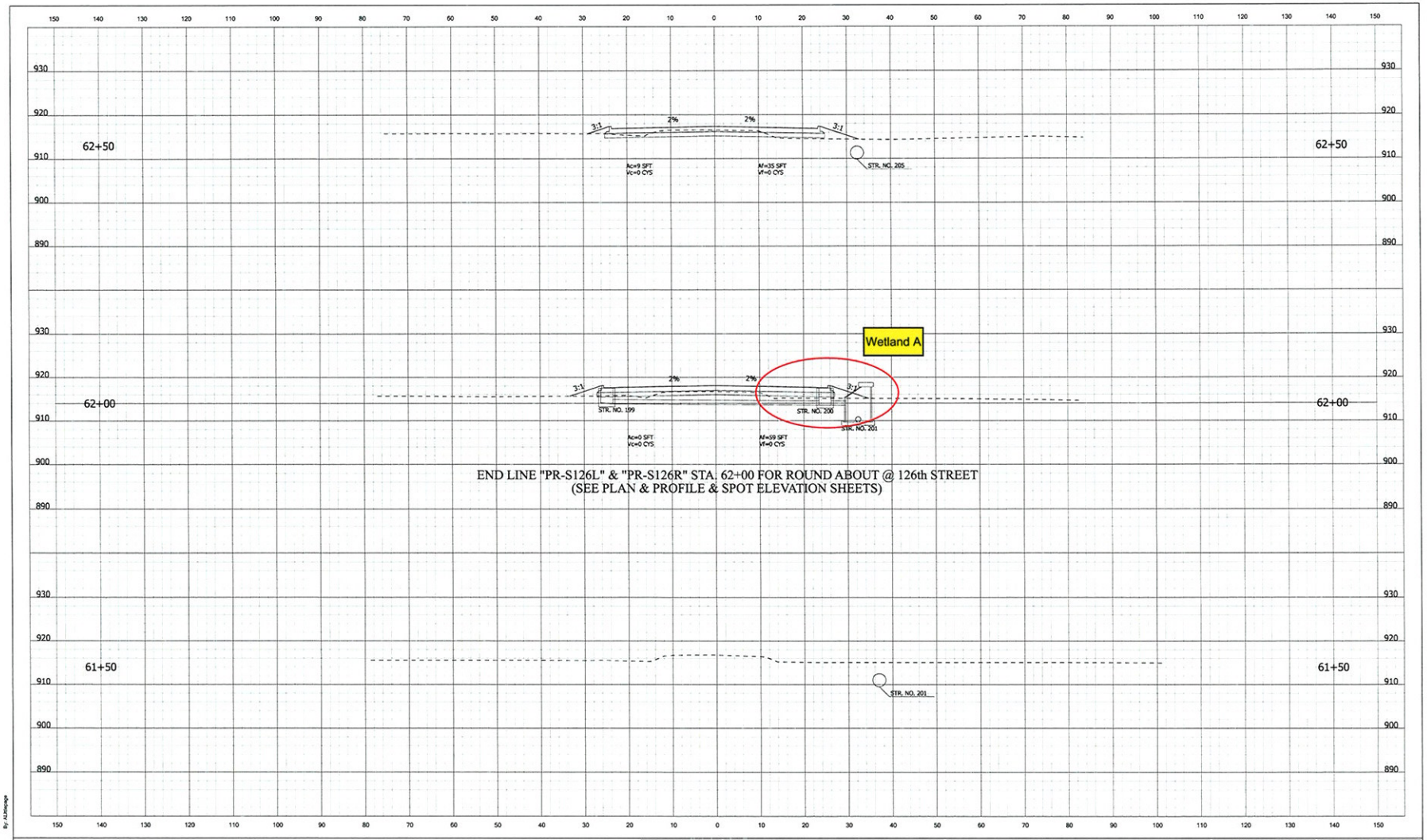

RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER _____ DATE

DESIGNED: VA DRAWN: SJ

CHECKED: PWM CHECKED: PWM

CITY OF CARMEL

CROSS SECTIONS
LINE "A"

HORIZONTAL SCALE	BRIDGE FILE
1" = 10'	
VERTICAL SCALE	DESIGNATION
1" = 10'	
SURVEY BOOK	SHEET
	XS-25 of XS-46
CONTRACT	PROJECT
	06-21

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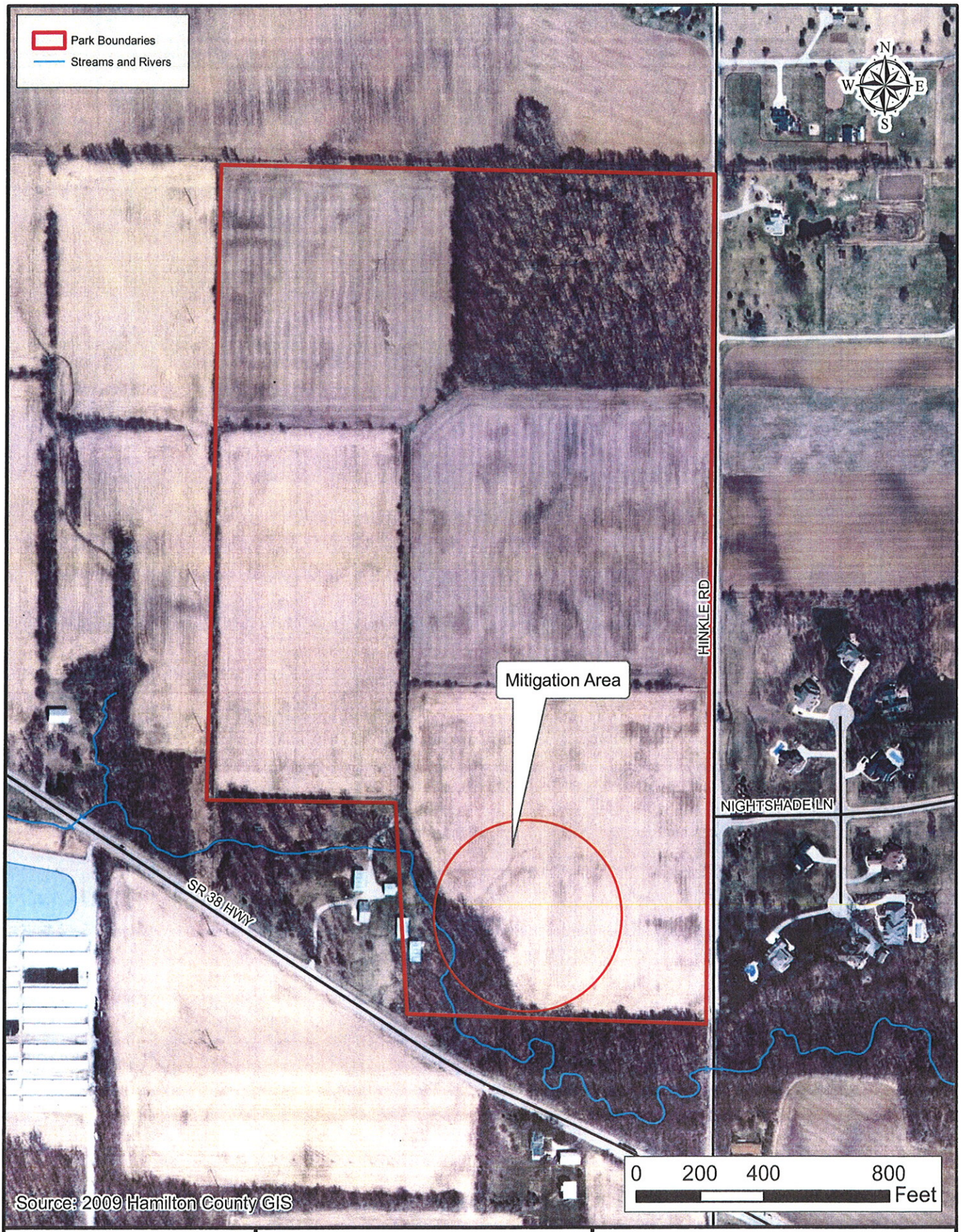

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STRUCTUREPOINT

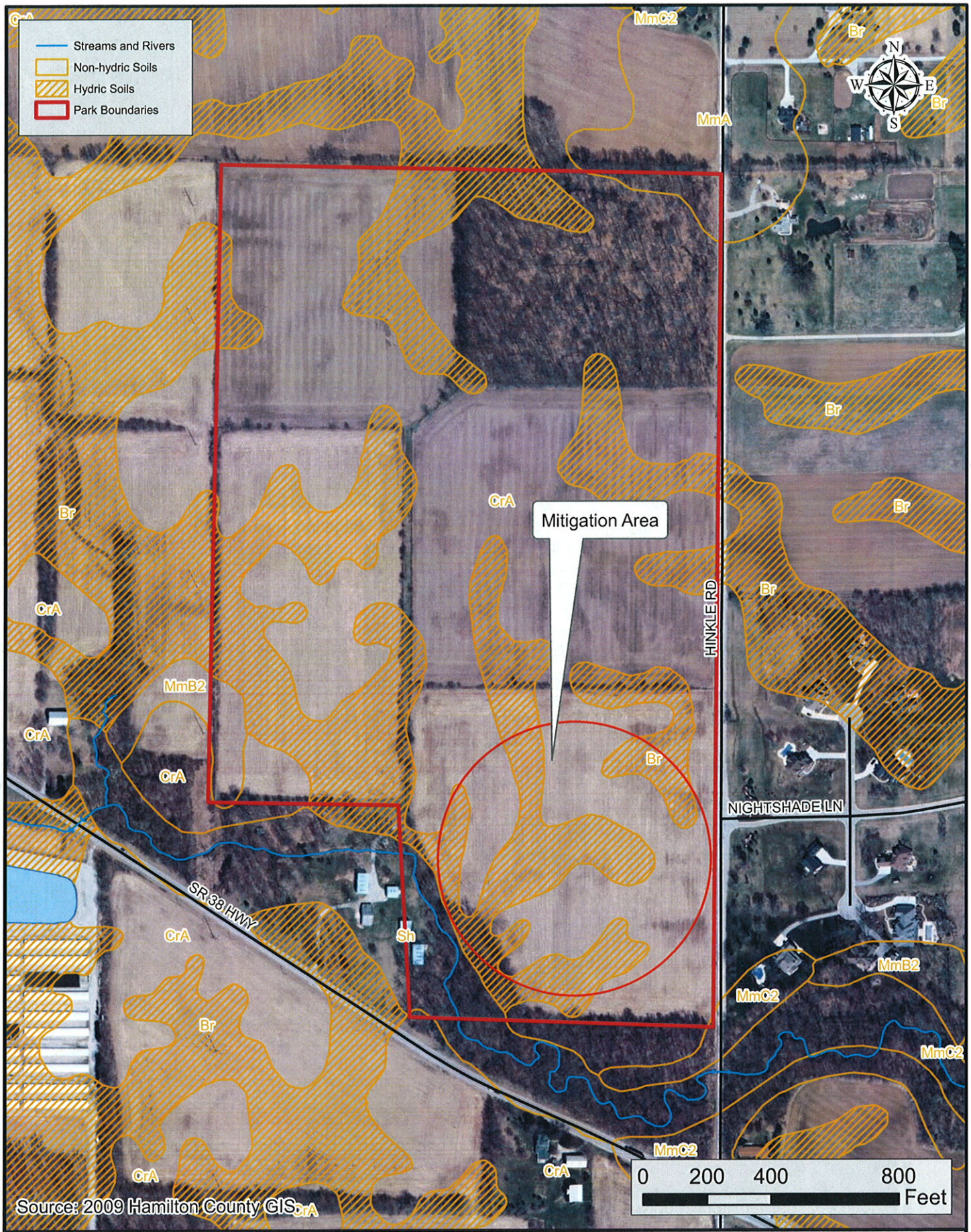
2009 Aerial Mapping

Applicant: City of Carmel
Carmel City Hall, 1st Floor
One Civic Square
Carmel, IN 46302

Bray Homestead

Location: Carmel
Township: Washington and Noblesville
County: Hamilton
State: Indiana

Date: 05/25/2010



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AMERICAN STRUCTUREPOINT INC

www.structurepoint.com

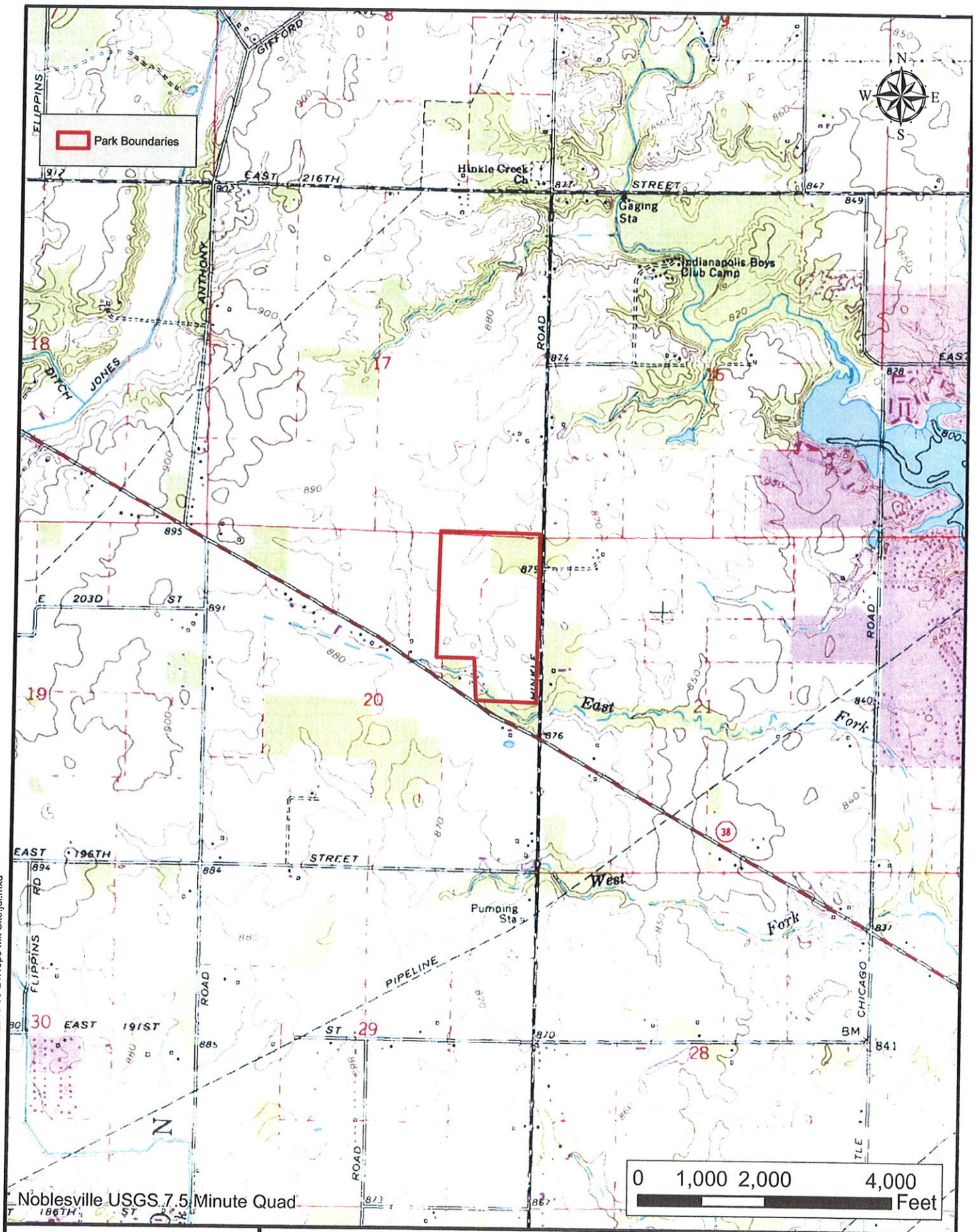
Hamilton County Soil Mapping
USDA SSURGO Digital Soil Data

Applicant: City of Carmel
Carmel City Hall, 1st Floor
One Civic Square
Carmel, IN 46302

Bray Homestead

Location: Carmel
Township: Washington and Noblesville
County: Hamilton
State: Indiana

Date: 05/25/2010



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STRUCTUREPOINT

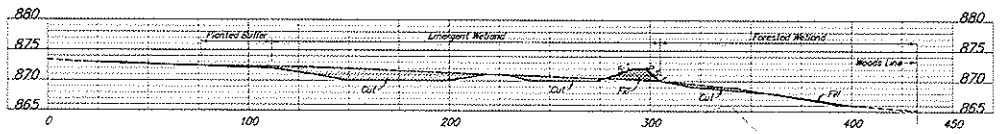
Topographic Mapping

Applicant: City of Carmel
Carmel City Hall, 1st Floor
One Civic Square
Carmel, IN 46302

Bray Homestead

Location: Carmel
Township: Washington and Noblesville
County: Hamilton
State: Indiana

Date: 05/25/2010



SECTION A-A
Horizontal = 1"=30'
Vertical = 1"=30'

DRAFT - NOT FOR CONSTRUCTION

General Notes:

1. Where topsoil has been stripped due to grading operations, six to twelve inches of topsoil shall be replaced. Topsoil shall be lightly compacted to the planned elevation.
2. Any subsurface drainage pipe encountered during site grading shall be addressed in accordance with the special provisions.

Legend

- 870 — Existing Major Contour
- 869 — Existing Minor Contour
- 870 — Proposed Major Contour
- 869 — Proposed Minor Contour
- Planned Normal Pool
- Riprap Spillway (See Sheet 6)
- Top of Berm (El. 872.00) (See Sheet 6 for Berm Section)

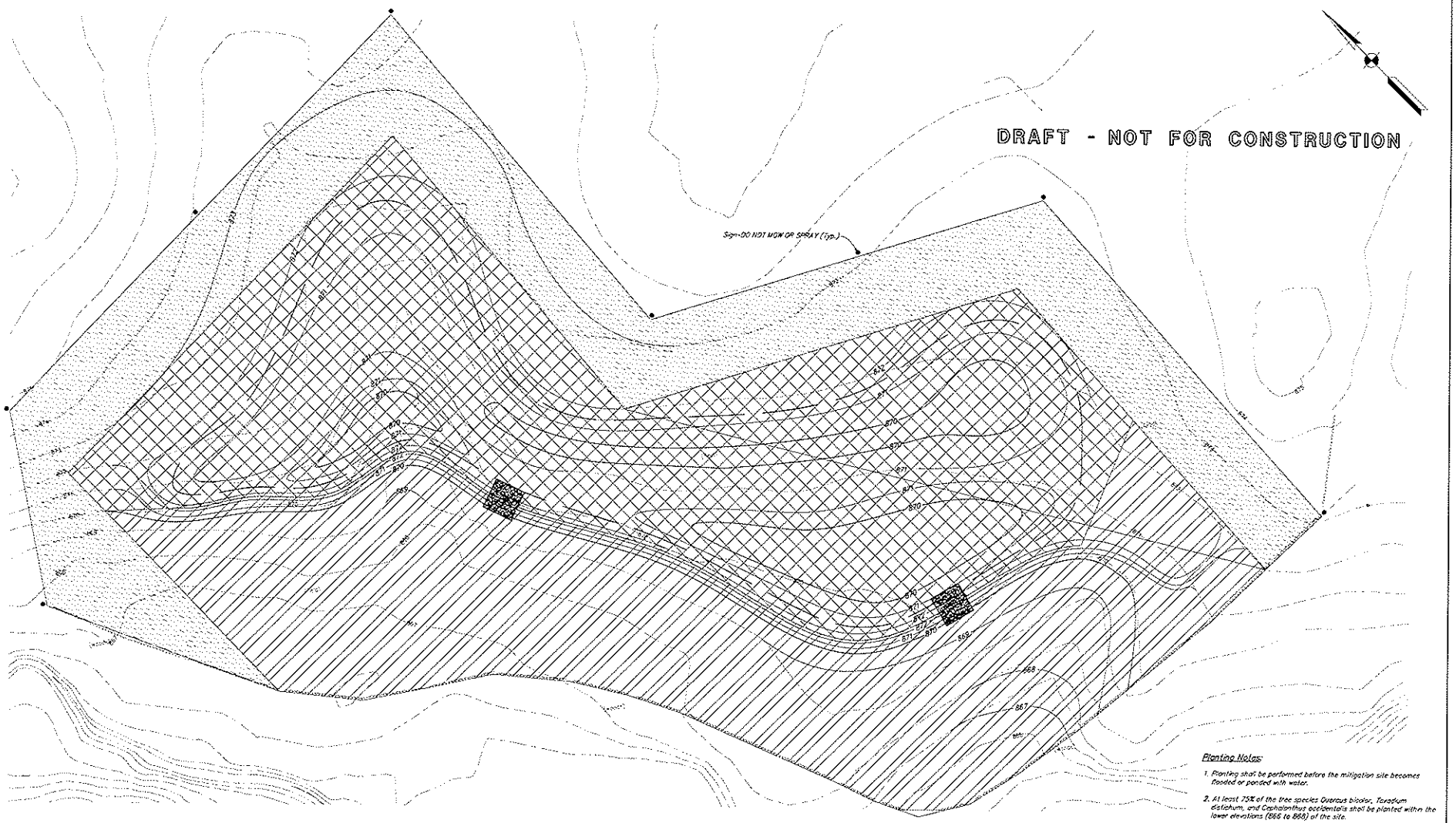
RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER _____ DATE

DESIGNED: JNS DRAWN: AJC
CHECKED: CAM CHECKED: JNS

CITY OF CARMEL

GRADING PLAN

HORIZONTAL SCALE 1"=30'	BRIDGE FILE
VERTICAL SCALE N/A	DESIGNATION NO.
SURVEY BOOK	SHEETS 3 of
CONTRACT	PROJECT NO.



Planting Notes:

1. Planting shall be performed before the mitigation site becomes flooded or ponded with water.
2. At least 75% of the tree species Quercus bicolor, Taxodium distichum, and Cephalanthus occidentalis shall be planted within the lower elevations (866 to 868) of the site.
3. Tree planting shall be performed in designated areas at 15 feet on center spacing (roughly 200 stems per acre).

Legend

870	Existing Major Contour	Planned Normal Pool	Buffer - 0.85 Acres
869	Existing Minor Contour	Riprap Spillway (See Sheet 7)	Emergent Planting - 2.23 Acres
870	Proposed Major Contour	Top of Berm (El. 872.00) (See Sheet 7 For Berm Section)	Forested Wetland Planting - 1.84 Acres
869	Proposed Minor Contour		

RECOMMENDED FOR APPROVAL: DESIGN ENGINEER DATE		CITY OF CARMEL	HORIZONTAL SCALE: 1"=30' / BRIDGE FILE:
DESIGNED: JNS	DRAWN: A-S	PLANTING PLAN	VERTICAL SCALE: N/A / DESIGNATION NO.:
CHECKED: CJM	CHECKED: JNS		SURVEY BOOK: / SHEETS: 4 of
			CONTRACT: / PROJECT NO.:

(05120201080120) 14-Digit Watershed. The mitigation site is located in the far northwest portion of the 14-digit watershed which drains south and east. Therefore, the mitigation site will be water quality amenity to the primary headwater portion of the watershed.

The Upper White River Watershed encompasses 2,720 square miles of Central Indiana. A map of the watershed along with callouts of each site is included at the conclusion of this document.

IV. Mitigation Site Selection and Justification

The mitigation site is located in the future Bray Homestead Hamilton County park at the northwest corner of the SR 38 and Hinkle Road in Carmel, Hamilton County, Indiana. The proposed mitigation plan calls for the construction of an approximately 5.0 acre area. Mitigation ratios were assessed at 2:1 for emergent wetlands and 4:1 for forested wetlands. The area will construct a minimum of 0.84 acres of emergent and forested wetland as shown in the table below with the surrounding site being developed with at least 1.0 acre of natural area planted either in native prairie or forested vegetation.

Wetland Type	Impact Acre	Ratio	Mitigation Area
Emergent	0.2	2	0.4
Forested	0.11	4	0.44
Total			0.84

The site was selected due to its existing topographic position and presence of naturally hydric soils. The site sits in an agricultural field adjacent to a forested area buffering the East Fork of Sly Run. The site receives drainage from the central and eastern portions of the park. Mitigation site soils include Crosby silt loam and the hydric listed Brookston silty clay loam. The proposed mitigation plan includes grading of the mitigation area to capture and retain runoff from the adjacent park/agricultural land and will utilize natural hydric soils to establish an emergent and forested wetland. In total the emergent sector will encompass a minimum of 0.5 acres while the forested wetland will total a minimum of 0.4 acres.

A water budget hydrograph (attached) was prepared for the mitigation site to determine the presence of a sufficient water supply for the wetland area. Daily rainfall and precipitation data were analyzed using two weather stations in Hamilton County (Carmel 3E Cooperative Station ID 121303: Lynwood Farms Cooperative Station ID 125217) from 1979 to 2009. Sixteen years of complete records were collected from the stations and median, high, and low precipitation years were chosen for analysis in the water budget. The water budget model considers inputs from precipitation and runoff and losses due to infiltration and evaporation. The water budget hydrograph predicts that during an average precipitation year, the wetland will reach its full depth of 18 inches during the months of April and May, after which it will slowly draw down throughout the summer months and have no surface water for a period of approximately one month between September and October. This fluctuation in water surface elevations will mimic naturally occurring surface water wetlands in the area. Groundwater inputs have been

multiflora rose	*Rosa multiflora*	FACU
Canada horseweed	*Conyza canadensis*	FAC-
garlic mustard	*Alliaria petiolata*	FAC
creeping thistle	*Cirsium arvense*	FACU
curly dock	*Rumex crispus*	FAC+
common boneset	*Eupatorium perfoliatum*	FACW+
spotted touch-me-not	*Impatiens capensis*	FACW

The impact site along Shelborne Road is composed of 0.11 acres of forested wetlands. The surrounding area is a mix of idle land and forested areas surrounded by developed residential subdivisions. The dominant vegetation in the impacted wetland is located in the table below.

Common Name	Scientific Name	Indicator
silver maple	*Acer saccharinum*	FACW
gray dogwood	*Cornus racemosa*	FACW
woodland sedge	*Carex blanda*	FAC
hops sedge	*Carex lupulina*	OBL

Currently, the 2.5 acre mitigation site exists as a farmed agricultural field within Bray Homestead. Adjacent land to the southwest is forested and buffers the East Fork of Sly Run.

Current Owner

Currently, the extension of Illinois Street is complete and the impact site was acquired as right-of-way by the City of Carmel. Construction along Shelborne Road has not been initiated. The properties affected are currently owned by: The City of Carmel; Stirsman, Melinda M. Revocable Trust 3548 W 126th Street; Thomas, Dawn E. 12658 Shelborne Road; Bammann, Steven J. and Nora A. 12500 Shelborne Road. The Shelborne wetlands will be acquired as permanent right-of-way in conjunction with a roundabout at 126th and Shelborne. The mitigation site will be incorporated into the Bray Homestead a Hamilton County Park and is thus owned and maintained by the Hamilton County Parks and Recreation Department.

Watersheds

Illinois Street impacts are located within the Upper White River Watershed (05120201), more specifically, the Cool Creek-Grassy Branch/ Little Cool Creek (05120201090030) 14-Digit Watershed.

Shelborne Road impacts are also located in the Upper White River Watershed (05120201). The site encompasses a region which includes the Eagle Creek- Long Branch/ Irishman Run (05120201120080) 14-Digit Watershed.

The mitigation site falls within the same 8 digit watershed, the Upper White River Watershed (05120201). The site falls within the Cicero Creek-Sly Run

excluded from this model to provide a conservative estimate of the water budget however, the Hamilton County soil survey notes that Brookston silty clay loam has a seasonal high water table within one foot of the soil surface between December and May; therefore, the wetland may maintain a higher water surface elevation during these months.

The installation of a mitigation area will increase local wildlife habitat by expanding the riparian buffer that currently exists along the East Fork of Sly Run. In addition the wetland will collect runoff from adjacent agricultural/park areas and increase ground water recharge by ponding small volume storm events. The wetland will also provide water quality benefits to Sly Run by capturing sediment and pollutants prior to discharge to the stream.

V. Mitigation Site Plans

The proposed mitigation plans include construction of a wetland with both emergent and forested habitat types. The wetland will encompass a minimum of 0.9 acres and be comprised of 0.5 acres of emergent and 0.4 acres of forested wetlands.

Grading Plan

The grading plan includes minor grading to construct a low berm which will collect runoff from the upstream watershed and pond water from 0 to 18 inches. The berm will include two shallow spillways (6 inch deep by 20 feet wide) which will discharge water to lower sections of the wetland during storm events. A second low berm 0 to 1 foot high will be constructed in the forested planting area to maintain soil moisture and shallow ponding for forested wetland establishment. Minor surface grading will be performed in the wetland area to create small pools and/or poorly draining slopes. A mitigation site grading plan is included in Appendix C of this document.

Equipment

Standard grading and hauling equipment may be utilized during grading activities for construction of low berms and surface grading. After the grade has been established heavy machinery shall be kept out of the mitigation area. Seeding and tree planting equipment- augers, skid steers, discs, seeding drills, etc. - will be utilized to establish the vegetation in the wetlands.

Plantings

Plantings for the emergent wetland area will be composed and emergent herbaceous seed mix as indicated in Appendix C. A standard nursery mix from an approved native plant nursery may only be used upon approval from the Engineer. The forested wetland area will be planted with a forested understory seed mix. Trees will be installed at 15 feet on-center spacing (approx. 200 stems/acre) throughout the forested planting area. A native prairie buffer will be planted at the perimeter of the wetland. A temporary cover crop is included with all seed mixes to assist in erosion control and perennial weeds during the

initial plant establishment period. Seed mixes and species requirements are included in Appendix C.

Hydrology

The wetland will derive its hydrology by capturing surface runoff from the adjacent park/agricultural area. The area receives runoff from the eastern and central portions of the park. The upstream watershed to the proposed wetland area is approximately 15.5 acres. Considering the minimum wetland area to be established (0.9 Acres), there is a a greater than 17:1 watershed to wetland area ratio which should supply an adequate amount of runoff to the site. The water budget hydrograph prepared for this site indicates the wetland contain standing water for 11 months in a typical year. A seasonal high water table from December to May will provide additional hydrology inputs in the spring. The water budget hydrograph is supplied in the Appendix.

Erosion Control

Appropriate erosion control measures will be implemented during construction of the wetland. Erosion control features will be in place to comply with 327 IAC 15-5 to prevent runoff during grading and planting activities.

Temporary erosion control during construction will be performed in accordance with 327 IAC 15-5 (Rule 5) and will include appropriate erosion and sediment controls for the season and stage of construction. A rule 5 permit will be necessary for this project.

Current design plans include the use of erosion control blankets to protect berm slopes and silt fence at downstream perimeter of the project. Temporary seed and mulch will be used to control erosion during the plant establishment phase. Riprap protection will be provided at the spill way locations.

VI. Performance Standards

The success of this wetland requires the establishment of 0.5 acres of emergent and 0.4 acres of forested wetlands that meet the three wetland criteria indicators as established by the US Army Corps of Engineers. A wetland delineation will be completed in the final year of monitoring and submitted with the request from release of further monitoring.

Site specific criteria are as follows:

1. Greater than 50% of the dominant vegetation species within the wetland must be classified as hydrophytic.
2. The hydrology at the mitigation wetland site must meet the wetland hydrology criteria contained in the United States Army Corps of Engineers Wetland Delineation Manual, Technical Report Y-87-1 (January, 1987)
3. The combined surface area coverage of Reed Canary Grass *(Phalaris arundinacea)* and cattail *(Typha spp.)* shall not cover more than 15% of the mitigation wetland.

4. The mitigation wetland is free of the following exotic species: *Lytrum salicara* (purple loosestrife), *Phragmites australis* (common reed) and *Myriophyullum spicatum* (water milfoil).
5. Native vegetation excluding cattail *(Typha spp.)* must cover at least 70% of the mitigation wetland.
6. No more than 10% of the surface area coverage of the mitigation wetland may be open water, bare ground or a combination of the two. Open water and bare ground are defined as areas with less than 10% vegetative cover.
7. The mitigation wetland must consist of 0.5 acres of emergent and 0.4 acres of forested wetlands.

If upon the final year of monitoring the success criteria outlined above is not meet, a plan of remediation will be completed and coordinated with the IDEM Section 401 Program. Appropriate action will be implemented to correct the wetland the following growing season. The site will be monitored for an additional five years following the completion of the remedial tasks.

VII. Site Protection and Maintenance

The City of Carmel and Hamilton County will be responsible for the maintenance of the mitigated area. Access to the site will be restricted during construction. Access to the site upon completion will be controlled by the Hamilton County Department of Parks and Recreation. Need for restriction to the site is not necessary at this stage of development. "DO NOT MOW OR SPRAY" signs will be posted at the perimeter of the natural area to prevent disturbance from the sites ground and maintenance crews.

Invasive species will be inventoried during annual monitoring and action to limit the spread of such species will be taken as deemed necessary.

VIII. Monitoring Plan

Monitoring will take place for three to five years following the initial growing season. Monitoring reports will be submitted to IDEM and the USACE Louisville District no later than December 31 of each year. Monitoring will be conducted by the City of Carmel. Vegetation, hydrology, and soils data will be collected as a part of each years monitoring.

The following monitoring method for wetland mitigation is a guide. The final method will fall under the discretion of the investigator and methodology will be documented in the annual monitoring reports.

Two monitoring stations will be randomly selected within the wetland in the first year and monitored at the same location on an annual basis in addition to transect sampling. A wetland data form will be completed at each monitoring station, along with photographic documentation. Soils, hydrology, and an assessment of the plant community will compose the wetland data form. Soil samples will be assessed for qualities of hydric soils, such as, but not limited to, mottling, concretions, or low-chroma colors. Indicators

of hydrology include, but are not limited to, inundation, saturation, water marks, and drainage patterns.

Monitoring of vegetation within the wetland will begin by transecting the wetland in two locations. Along each transect, a minimum of four herbaceous sample points of 1-square-meter plots will be randomly selected. Within each plot, the percent cover, species present, and health of the vegetation will be determined. Woody vegetation sample plots of with a 30 foot radius will also be sampled and total number of woody stems counted. Volunteer individuals will be counted towards the total stems per acre where they are determined to be native species. A total species list for each sample location and the entire wetland will be compiled and analyzed. The success criteria, with regard to vegetative reestablishment, are a minimum of 70 percent coverage of native vegetation as measured within the sample plots. As well as, a total vegetative coverage of greater than 10 percent to exclude areas defined as bare ground or open water.

Each year the estimated acreage of wetlands present at the site shall be recorded and included in the annual monitoring report. During the last year of monitoring, a complete wetland delineation of the site shall be completed to determine if the appropriate acre of emergent wetland is present in accordance with the Section 401 WQC and Section 404 DA Permit.

The sampling will be conducted one time per year prior to September 30 beginning in the year following planting and continuing for three to five years or until the success criteria are met for two consecutive years. If the success criteria have not been met within five years, a remedial action plan will be implemented.

IX. Adaptive Management Plan

In the event that the mitigation site is not successful the City of Carmel in cooperation with the Hamilton County Department of Parks and Recreation will prepare a document outlining the needed procedures for remedial actions. In the event the site does not meet the mitigation requirement of 0.5 acres of emergent and 0.4 acres of forested wetlands the City of Carmel will work with the Hamilton County Department of Parks and Recreation along with IDEM and the USACE to correct the issue.

X. Financial Assurances

Financial assurances for the Bray Homestead wetland mitigation site are the responsibility of the City of Carmel. The following is the contract information for the various responsible parties associated with the proposed mitigation site.

Contact Person

Mr. Michael T. McBride, PE
City Engineer
City of Carmel
Engineer's Office

MITIGATION SEEDING AND PLANTING

Description

This work shall consist of furnishing, delivering, and planting either or both plain and mulched seeding, plants, trees, shrubs, or seedlings. This work includes furnishing and placing seed, fertilizer, inoculants, top soil, and mulch, if required, in a prepared seed bed. This work shall also consist of the performance of incidental planting procedures and plant establishment work to provide a compete operation in accordance with 105.03.

Materials

Materials shall be in accordance with the following:

Erosion Control Blanket	914.05(a-5)
Fertilizer	914.03
Plants	914.08
Seed	914.04
Top Soil	914.01
Water	914.09(a)
Fence	9108.04

Mulch shall consist of wheat, rye, or oat straw. All mulch shall be reasonably free from primary noxious weeds in accordance with 914.04.

Seed shall be in accordance with 914.04 as applicable and shall be Pure Live Seed from approved nurseries within the Plant Hardiness Zones 4, 5, and 6. Seed must be source identified by the Indiana Crop Improvement Association through the Yellow Tag certification program. Origin and care of seeds shall follow the Indiana Seed Law as described in IC 15-15-1.

Erosion Control Blankets shall consist of a machined produced mat consisting of at least 90% of the total dry mass being clean straw from agricultural crops, with the exception that up to 30% of the total dry mass may be coconut fibers in lieu of an equal percentage of straw. Paper or paper related products shall not be permitted as components in the straw mat. The straw shall be evenly distributed throughout the mat to form a thickness of 1/2 in. +/- 1/8 in. The top and bottom sides of the mat shall be covered with a photodegradable/biodegradable plastic mesh (3.0 LBS/1,000 SFT top and 1.50 LBS/1,000 SFT bottom). The 2 mesh layers shall be substantially adhered to the straw by a knitting process using photodegradable/ biodegradable thread. The rolls shall be packaged with suitable protection for outdoor storage at a construction site in a manner which protects them from biodegradation prior to use. The average dry mass of the straw shall not be less than 0.5 LBS/SYS. The minimum roll width shall be 6 FT.

Turf Reinforcement Mats shall consist of a machined produced mat consisting of at least 90% of the total dry mass being clean straw from agricultural crops, with the exception that up to 30% of the total dry mass may be coconut fibers in lieu of an equal percentage of straw. Paper or paper related products shall not be permitted as

components in the straw mat. The straw shall be evenly distributed throughout the mat to form a thickness of 0.72 in. +/- 1/8 in. The top and bottom sides of the mat shall be covered with a photodegradable/biodegradable plastic mesh (5.0 LBS/1,000 SFT each). The middle of the mat shall contain a photodegradable/biodegradable plastic corrugated mesh (24.0 LBS/1000 SFT). The 3 mesh layers shall be substantially adhered to the straw by a knitting process using photodegradable/ biodegradable thread. The rolls shall be packaged with suitable protection for outdoor storage at a construction site in a manner which protects them from biodegradation prior to use. The average dry mass of the straw shall not be less than 0.5 LBS/SYS. The minimum roll width shall be 6 FT.

Construction Requirements

Preparation of Ground before Seeding

Preparation of the ground before seeding shall be in accordance with 621.03 as applicable and as follows below.

Seeding shall be performed from September 15-November 30th and March 15th - May 15th

Spring or fall seedbed preparation shall consist of a 3 phase process of tilling to eliminate any existing seed source of undesirable volunteer species. The first phase shall consist of tilling or plowing no more than 6 inches deep on the first pass. The second phase shall commence once young developing weeds show and shall consist of tilling or disking no more than the upper 3 inches of soil. The third phase shall commence two weeks after the completion of the second phase, or once young developing weeds show and shall consist of tilling or discing no more than the upper 3 inches of soil. Upon completion of the third phase harrow the upper three 3 inches and seed within 24 hours.

Alternate spring seedbed preparation shall consist of a 3 phase process of tilling to eliminate any existing seed source of undesirable volunteer species. The first phase shall consist of tilling or plowing no more than 8 inches deep on the first pass in the fall. Allow the area to lay fallow over the winter. In the spring of the following year the second phase shall commence once young developing weeds show and shall consist of tilling or discing no more than the upper 3 inches of soil. The third phase shall commence two weeks after the completion of the second phase, or once young developing weeds show and shall consist of tilling or discing no more than the upper 3 inches of soil. Upon completion of the third phase harrow the upper three 3 inches and seed within 24 hours.

If water levels in the mitigation site are too deep for seeding, planting, proper germination, or establishment, the contractor shall be responsible for removal of water to allow for proper seeding, planting, germination, and establishment.

Preparation of Ground before Applying Erosion Control Blankets

The preparation of ground before applying erosion control blankets or turf reinforcement mats shall be in accordance with 621.04.

Applying Fertilizer, Seed, and Mulch

The application of fertilizer, seed, and mulch shall be in accordance with 621.05 and as follows below.

A roller or light raking shall be used on all seeded areas to ensure adequate seed-to-soil contact. Seeds shall not be covered by more than 1/8 (0.125) inch of soil. Do not use a roller if the soil is wet.

Seed Mixtures

Seed Mixtures shall be classified as follows.

Comparable seed mixes to those listed below may be substituted with the approval of the engineer. Each species specified shall be applied at a rate equal to or greater than that listed in the mixtures below unless approved by the engineer. If a specified species of seed listed in the seed mixture is not available notify the engineer and present a proposal for the use of a substitute species.

Seed Mix Emergent Wetland

This seed mixture shall be applied at the rate of 32.5 lb/acre. The mixture shall consist of the following:

Emergent Wetland Seed Mix		
Scientific Name	**Common Name**	**Oz/Acre**
Acorus calamus	sweet flag	0.50
Alisma spp.	water plantain mix	2.00
Asclepias incarnata	swamp milkweed	1.00
Aster puniceus	bristly aster	1.00
Bidens cernua	nodding beggarstick	2.00
Carex comosa	bristly sedge	1.00
Carex cristatella	crested oval sedge	2.00
Carex frankii	Frank's sedge	6.00
Carex vulpinoidea	brown fox sedge	3.00
Eleochris palustris	great spike rush	0.50
Eupatorium perfoliatum	common boneset	1.00
Elymus virginicus	Virginia wild rye	12.00
Glyceria striata	fowl manna grass	1.00
Helenium autumnale	sneezeweed	2.00
Iris virginica	blue flag	2.50
Leersia oryzoides	rice cut grass	1.50
Lobelia siphilitica	great blue lobelia	1.00
Lycopus americanus	common water horehound	0.25
Mimulus ringens	monkey flower	1.50
Penthorum sedoides	ditch stonecrop	0.50
Polygonum hydropiperoides	swamp smartweed	0.50
Rudbeckia laciniata	wild golden glow	0.75
Sagittaria latifolia	common arrowhead	2.00
Scirpus atrovirens	dark green rush	1.00

Scirpus cyperinus	wool grass	0.75
Scirpus pungens	chairmaker's rush	1.00
Scirpus validus	great bulrush	2.50
Senna hebecarpa	wild senna	2.00
Sparginium eurycarpum	common bur reed	4.00
Thalictrum dasycarpum	purple meadow rue	0.50
Verbena hastata	blue vervain	1.50
Vernonia fasciculata	smooth ironweed	2.00
TOTAL		**60.75**
Temporary Cover Seed Mix		
Avena sativa	common oat	360
Lolium multiflorum	annual rye	100
TOTAL		**460**
TOTAL		**520.75**

Fertilizer and mulching material, where specified or directed, shall be applied in accordance with 621.05.

Seed Mix Forested Wetland Planting

This seed mixture shall be applied at the rate of 37.8 lb/acre. The mixture shall consist of the following:

Forested Wetland Seed Mix		
Scientific Name	**Common Name**	**Oz/Acre**
Actinomeris alternifolia	Wingstem	16
Aster lateriflorus	Side flowering aster	1
Bidens coronata	Tickeseed	12
Calamagrostis canadensis	Blue joint grass	2
Carex vulpinoidea	Fox sedge	2
Elymus canadensis	Prairie wild rye	30
Elymus riparius	Riverbank wild rye	30
Elymus virginicus	Virginia wild rye	30
Glyceria striata	Fowl manna grass	2
Leersia oryzoides	Rice cutgrass	2
Lobelia cardinalis	Cardinal flower	0.5
Lobelia siphilitica	Great blue lobelia	0.5
Panicum virgatum	Prairie switch grass	8
Rudbeckia laciniata	Green-headed coneflower	2
Rudbeckia triloba	Three lobed coneflower	2
Scirpus atrovirens	Dark green bulrush	1
Spartina pectinata	Prairie cord grass	4
TOTAL		**145**
Temporary Cover Seed Mix		
Avena sativa	common oat	360
Lolium multiflorum	annual rye	100
TOTAL		**460**

TOTAL	605

Fertilizer and mulching material, where specified or directed, shall be applied in accordance with 621.05.

Seed Mix Buffer

This seed mixture shall be applied at the rate of 37.2 lb/acre. The mixture shall consist of the following:

Buffer Seed Mix		
Scientific Name	**Common Name**	**Oz/Acre**
Andropogon gerardii	Big Bluestem	13.00
Bouteloua curtipendula	Side Oats Grama	14.00
Carex vulpinoidea	Brown Fox Sedge	1.00
Elymus canadensis	Canada Wild Rye	22.00
Panicum virgatum	Switch Grass	2.50
Schizachyrium scoparium	Little Bluestem	28.00
Sorghastrum nutans	Indian Grass	16.00
Asclepias tuberosa	Butterfly Weed	1.50
Aster novae-angliae	New England Aster	1.50
Chamaecrista fasciculata	Partridge Pea	2.75
Coreopsis lanceolata	Sand Coreopsis	1.50
Dalea purpurea	Purple Prairie Clover	2.00
Desmanthus illinoiensis	Illinois Sensitive Plant	1.50
Echinacea purpurea	Broad-Leaved Purple Coneflower	8.00
Eryngium yuccifolium	Rattlesnake Master	1.00
Heliopsis helianthoides	False Sunflower	0.25
Lespedeza capitata	Round-Headed Bush Clover	1.00
Liatris aspera	Rough Blazing Star	1.00
Lupinus perrinis	Wild lupine	0.25
Monarda fistulosa	Wild Bergamot	1.00
Potentillia arguta	Prairie Cinquefoil	0.75
Pycnanthemum virginianum	Common Mountain Mint	0.50
Ratibida pinnata	Yellow Coneflower	4.50
Rudbeckia hirta	Black-Eyed Susan	6.00
Silphium terebinthinaceum	Prairie Dock	0.75
Solidago nemoralis	Goldenrod	0.50
Vernonia fasciculata	Common Ironweed	2.00
TOTAL		**134.75**
Temporary Cover		
Avena sativa	Common Oat	360.00
Lolium multiflorum	Annual Rye	100.00
Total		**460.00**
TOTAL		**594.75**

Fertilizer and mulching material, where specified or directed, shall be applied in accordance with 621.05.

Forested Tree Plantings

Hardwood tree saplings to be planted will be selected from the accompanying list of plant species suitable for floodplain forests. This work shall consist of planting trees within existing forested areas or as directed. Trees shall be planted in a random fashion within the forested wetland planting area. An estimated 400 saplings will be planted within the mitigation area. All planting shall be in accordance with Section 622 of the INDOT Specifications unless noted herein.

Hardwood species will be planted in a random manner with regard to species composition to simulate natural stocking conditions. Tree saplings shall be selected from the approved list of tree species. No single species may comprise more than 20 percent of saplings planted in each planting area. At least 25 percent of the saplings shall consist of hickory or oak species. At least 10 species shall be selected including a minimum of six large canopy species, one large understory species, and three small canopy species or small understory species. Of the large canopy species, no more than one maple, at least one hickory, and at least two oak species should be selected. Species selected shall be planted in approximately equal numbers of saplings. Species with an indicator status of FAC or FACU should be planted within the mitigation site above elevation 868. Species with an indicator status of FAC, FACW, or OBL should be planted between elevation 866 and 868 on the mitigation site. A list of species to be planted shall be provided to the Engineer for approval prior to planting.

Central Region Woody Riparian Vegetation			
Common Name	Scientific Name	Size / Class	Indicator
Black Maple	*Acer nigrum*	Large Canopy Tree	FAC
Red Maple*	*Acer rubrum*	Large Canopy Tree	FAC
Silver Maple	*Acer saccharinum*	Large Canopy Tree	FACW
Sugar Maple	*Acer saccharum*	Large Canopy Tree	FACU
Bitternut Hickory	*Carya cordiformis*	Large Canopy Tree	FAC
Shellbark Hickory*	*Carya laciniosa*	Large Canopy Tree	FACW
Shagbark Hickory*	*Carya ovata*	Large Canopy Tree	FACU
Hackberry*	*Celtis occidentalis*	Large Canopy Tree	FAC-
American Beech	*Fagus grandifolia*	Large Canopy Tree	FACU
White Ash*	*Fraxinus americana*	Large Canopy Tree	FACU
Kentucky Coffeetree	*Gymnocladus dioicus*	Large Canopy Tree	FACU
Black Walnut	*Juglans nigra*	Large Canopy Tree	FACU
Tuliptree*	*Liriodendron tulipifera*	Large Canopy Tree	FACU+
American Sycamore*	*Platanus occidentalis*	Large Canopy Tree	FACW
Eastern Cottonwood	*Populus deltoides*	Large Canopy Tree	FAC+
White Oak*	*Quercus alba*	Large Canopy Tree	FACU
Swamp White Oak*	*Quercus bicolor*	Large Canopy Tree	FACW+
Bur Oak*	*Quercus macrocarpa*	Large Canopy Tree	FAC-
Northern Red Oak*	*Quercus rubra*	Large Canopy Tree	FACU
Shumard Oak*	*Quercus shumardii*	Large Canopy Tree	FACW-

Central Region Woody Riparian Vegetation			
American Basswood	*Tilia americana*	Large Canopy Tree	FACU
American Elm	*Ulmus americana*	Large Canopy Tree	FACW-
Slippery Elm	*Ulmus rubra*	Large Canopy Tree	FAC
Box Elder	*Acer negundo*	Large Understory Tree	FACW-
Ohio Buckeye*	*Aesculus glabra*	Large Understory Tree	FAC+
American Hornbeam	*Carpinus caroliniana*	Large Understory Tree	FAC
Downy Hawthorn	*Crataegus mollis*	Large Understory Tree	FACW-
Red Mulberry	*Morus rubra*	Large Understory Tree	FAC-
Black Willow	*Salix nigra*	Large Understory Tree	OBL
Butternut	*Juglans cinerea*	Small Canopy Tree	FACU+
Honey Locust	*Gleditsia triacanthos*	Small Canopy Tree	FAC
Black Cherry	*Prunus serotina*	Small Canopy Tree	FACU
Pin Oak*	*Quercus palustris*	Small Canopy Tree	FACW
Common Paw Paw	*Asimina triloba*	Small Understory Tree	FAC
Redbud*	*Cercis canadensis*	Small Understory Tree	FACU
Alternate-Leaf Dogwood	*Cornus alternifolia*	Small Understory Tree	FACU-
Flowering Dogwood	*Cornus florida*	Small Understory Tree	FACU-
Cockspur Hawthorn	*Crataegus crusgalli*	Small Understory Tree	FAC
Eastern Wahoo	*Euonymus atropurpureus*	Small Understory Tree	FAC-

* Indicates species typically available as air root pruned system container grown stock.

The Forested Tree planting areas shall be planted with 1-0 or older air root pruning system container-grown saplings with a dense fibrous root system. The container saplings shall be grown in 3 or 5 gallon containers or larger. Container saplings shall be 4-6' tall with a caliper diameter greater than 3/8 inch. Container saplings shall be selected from the previous list of acceptable species.

The saplings will be obtained from licensed nursery sources in accordance with Section 914.08 of the INDOT Standard Specifications. A list of suppliers will be furnished to the Owner for approval prior to ordering plant material. All saplings will be in accordance with Sections 914.08(d) and (e) of the INDOT Standard Specifications. All plants and seed will be obtained from commercial sources within ANSI Plant Hardiness Zones 4, 5, or 6. A list of suppliers will be furnished to the engineer for approval prior to ordering plant material. All plant material will be kept moist during transportation and storage. Plant material will not be subjected to freezing, drying, or excessive warming.

The container saplings shall be planted in a random manner unless otherwise noted on the plans. Container saplings shall be planted in a random manner with regard to species composition but no closer than 15 foot on-center.

Method of Measurement

The acceptable quantities for the work performed under this section shall be measured in accordance with 205.06, 621.13 and 622.21.

Basis of Payment
The basis of payment for the work performed under this section shall be in accordance with 205.07, 621.14 and 622.22.

Payment will be made under:

Pay Item	Pay Unit Symbol
Mobilization and Demobilization	EACH
Mulching Material	TON
Seed Mixture, Emergent Wetland	LBS
Seed Mixture, Buffer	LBS
Seed Mixture, Forested Wetland	LBS
Container Grown Seedling	EACH

The cost of preparing seed beds, tilling, seeding, raking, and all other necessary incidentals shall be included in the cost of the seed mixtures. The cost of furnishing and placing seed mixtures, in addition to incidentals listed above for seed mixtures shall be included in the cost of the seed mixture.

The cost of furnishing, hauling and placing the material, including material used to tie-down; repair of areas where mulch fails to stay in place, all labor, equipment, and necessary incidentals shall be included in the cost of mulching material.

The cost of furnishing, and placing material, including material used to tie-down, repair areas where mats fail to stay in place, all labor, equipment, and necessary incidentals shall be included in the cost of erosion control blanket or turf reinforcement mat.

The cost of de-watering shall be included in the cost of the seed mixture

Acceptance Period

One year after seeding and the installation of plants, the site will be inspected for proper vegetative establishment. Final acceptance shall be based on the following conditions:

a. Seventy-five percent of each plant community shall be covered with vegetation.
b. Fifty percent of the species planted should be alive and present.
c. Twenty-five percent of the vegetation should be native species of the permanent matrix.

d. Perennial Plants shall exhibit vigorous growth and be thoroughly rooted
e. A minimum of 95% of perennial plants shall be alive and growing.

If the plantings fail to meet any of the these conditions, the contractor shall be responsible for any and all work necessary to re-establish plantings to 100% at which time the contractor shall be released of his responsibilities.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.

Mitchell E. Daniels Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
Toll Free (800) 451-6027
www.idem.IN.gov

August 17, 2010

VIA CERTIFIED MAIL 91 7190 0005 2710 0007 5901

Mr. Michael McBride
City of Carmel – City Engineer
First Floor, One Civic Square
Carmel, IN 46032

Dear Mr. McBride:

Re: Section 401 Water Quality Certification
Project: Reconstruction of Shelborne Road
IDEM No.: 2010-340-29-BCB-X
COE No.: LRL-2009-629-sam
County: Hamilton

The Office of Water Quality has reviewed your application for an Individual Section 401 Water Quality Certification dated July 26, 2010, and received July 27, 2010. According to the application, you propose to outlet a 15" storm water pipe from a detention basin under Shelborne Road into Long Branch resulting in the discharge of approximately 3.5 cubic yards of riprap below the Ordinary High Water Mark for stabilization and energy dissipation. The project is located in the SW ¼ of Section 31, Township 18 North, Range 3 East near Carmel, Hamilton County. Isolated wetland impacts proposed under the same project will be reviewed separately under the state Isolated Wetland Law.

It is the judgment of this office that the aforementioned project will qualify for the U.S. Army Corps of Engineers' (Corps) Indiana Regional General Permit No. 1 (RGP) and meets the terms of all Section 401 Water Quality Certification conditions. Information on the Corps' Regional General Permit No. 1 and Nationwide Permits can be found at:

http://www.in.gov/idem/4391.htm

Section 401 Water Quality Certification is, therefore, considered granted for this project. You will receive no further correspondence from this office regarding this project.

If you have additional questions or do not have access to the Internet, please contact Brad Baldwin, Project Manager, of my staff at 317-234-5647, or you may contact the Office of Water Quality through the IDEM Environmental Helpline (1-800-451-6027).

Sincerely,

Martha Clark Mettler
Deputy Assistant Commissioner
Office of Water Quality

cc: Scott Matthews, USACE – Louisville District, Indianapolis Field Office
Summer O'Brien, RW Armstrong